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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/021,535	12/12/2001	Jeffrey John Anuszczyk	111345.122	1826

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EXAMINER

SHAW, PELING ANDY

ART UNIT PAPER NUMBER

2144

DATE MAILED: 05/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/021,535	ANUSZCZYK ET AL.	
	Examiner	Art Unit	
	Peling A. Shaw	2144	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 March 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 2-30 and 32-40 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-30 and 32-40 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 March 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

*pas*

**DETAILED ACTION**

***Continued Examination under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 02/21/2006 has been entered. Claims 1, 16 and 30-32 are amended. Claim 2 is cancelled. Claims 1 and 3-33 are still pending.
2. Amendment received on 07/27/2005 was entered. The specification was amended and reviewed and approved. Claims 1, 5, 10-12, 17, 31 and 32 were amended.

***Priority***

3. This application has no priority claim made. The filing date is 05/21/2002.

***Claim objections***

4. Claim 1 is objected to because of the following informalities:
  - a. Claim 1 is amended without proper marking of amended change, i.e. at the end of the claim the limitation of "and a multicast protocol according to the remote operating environment" is amended. However, the unmarked change is examined. Applicant is advised to mark any future amended change that would cause the delay of prosecution.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 3-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Todorov et al. (US 20020116453 A1), hereinafter referred as Todorov, in view of Steger et al. (US 6411987 B1), hereinafter referred as Steger.

- a. Todorov shows (claim 1) an industrial control system (Fig. 1), comprising: a server application operative to exchange data with an industrial controller (page 3, paragraph 29); a server component associated with the server application, the server component communicates via a plurality of protocols to facilitate data exchange (page 4, paragraph 33), and a host component to that exposes objects in the server component and determines a local operating environment or remote operating environment (page 5, paragraph 44: access the data exchange protocol plugins to render data for a referenced item to a client application according to a particular data exchange protocol), the objects communicate with a client component over a shared memory protocol according to a local operating environment (abstract; page 1, paragraph 8; page 3, paragraph 29-31; page 5, paragraph 40: data sharing standard, share the process data via known industrial standard protocol such DDE, SuiteLink and OPC). Todorov also shows multiple client may access the same data item (page 5, paragraph 44). Todorov does not show (claim 1) the objects communicate with a client component according to a multicast protocol in the remote operating environment.

- b. Steger shows (claim 1) the objects communicate with a client component according to a multicast protocol in the remote operating environment (column 4, line 28-40) in an analogous art for the purpose of industrial automation system and method having efficient network communication.
- c. It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to modify Todorov's functions of control access server with Steger's functions of multicasting data item.
- d. The modification would have been obvious because one of ordinary skill in the art would have been motivated to use the standard internet technology of multicasting in transport data to multiple network clients per Steger's teaching in the application of data sharing technology per Steger (column 9, line 20-52) and Todorov (abstract)'s teaching.
- e. Regarding claim 3, Todorov shows the plurality of protocols further comprising at least one of OLE for Process control (OPC) and Distributed Component Object Model (DCOM) (page 5, paragraph 40).
- f. Regarding claim 4, Todorov shows the server component is a data access server toolkit (page 4, paragraph 37).
- g. Regarding claim 5, Todorov shows further comprising the client component is a data access client toolkit to that exchanges data with the data access server toolkit (page 1, paragraph 8; page 2, paragraph 11; page 2-3, paragraph 24, 31; page 4-5, paragraph 34-43).

- h. Regarding claim 6, Steger shows the shared memory protocol further comprising at least one of a data and a name provider that is updated by the data access server toolkit, the contents of the at least one data and name provider periodically transferred to a shared memory buffer (column 9, line 20-52).
- i. Regarding claim 7, Todorov shows the shared memory buffer accessed by the data access client toolkit to provide data to a client application (page 1, paragraph 8; page 2, paragraph 11; page 2-3, paragraph 24, 31; page 4-5, paragraph 34-43).
- j. Regarding claim 8, Todorov shows the shared memory buffer receiving at least one of PCCC information and I/O network information from the data access server toolkit (page 4, paragraph 33).
- k. Regarding claim 9, Todorov shows the data access client toolkit is configured as an in-process server with a client application (page 6, paragraph 49).
- l. Regarding claim 10, Todorov shows the data access client toolkit manages one or more server connections and adjusts a flag according to a connection status, the connection status including failure detection of the connection (page 6, paragraph 49).
- m. Regarding claim 11, Todorov shows further comprising one or more redundant server connections, including at least one of a favor primary and a stay with current server condition configuration associated with the connections (page 6, paragraph 49).
- n. Regarding claim 12, Todorov shows the data provider processes one or more memory blocks (page 1, paragraph 8; page 2, paragraph 11; page 2-3, paragraph 24, 31; page 4-5, paragraph 34-43).

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- o. Regarding claim 13, Steger shows the multicast protocol further comprising updating a memory buffer via the server component and distributing the contents of the memory buffer to one or more clients via a network messaging command (column 4, line 28-40).
- p. Regarding claim 14, Todorov shows at least one of the server application, the server component, and the host component are integrated within the industrial controller (Fig. 1; page 3-4; paragraph 25-32).
- q. Regarding claim 15, Todorov shows the client application is a Human Machine interface (page 3, paragraph 28).

Together Todorov and Steger disclosed all limitations of claims 1 and 3-15. Claims 1 and 3-15 are rejected under 35 U.S.C. 103(a).

6. Claims 16-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Todorov et al. (US 20020116453 A1), hereinafter referred as Todorov in view of Steger et al. (US 6411987 B1), hereinafter referred as Steger.

- a. Regarding claim 16, Todorov shows method to facilitate data exchange in an industrial controller environment, comprising: adapting a server component in an industrial controller to exchange data with a client component (page 3, paragraph 29); determining a local configuration and a distributed configuration to exchange data (page 4, paragraph 33; page 5, paragraph 44: access the data exchange protocol plugins to render data for a referenced item to a client application according to a particular data exchange protocol); directing data according to a shared memory protocol in the local configuration (page 3, paragraph 29-31; page 5, paragraph 40).

Todorov also shows multiple client may access the same data item (page 5, paragraph 44). Todorov does not show (claim 16) directing data according to a multicast protocol in the distributed configuration; (claim 27) further comprising formatting network messages for adding groups and items via the multicast protocol; (claim 28) further comprising transmitting data values via the multicast protocol according to a change of state of the data values from a previous state.

- b. Steger shows (claim 16) directing data according to a multicast protocol in the distributed configuration (column 4, line 28-40); (claim 27) further comprising formatting network messages for adding groups and items via the multicast protocol (column 4, line 28-40); (claim 28) further comprising transmitting data values via the multicast protocol according to a change of state of the data values from a previous state (column 4, line 28-40) in an analogous art for the purpose of industrial automation system and method having efficient network communication.
- c. It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to modify Todorov's functions of control access server with Steger's functions of multicasting data item.
- d. The modification would have been obvious because one of ordinary skill in the art would have been motivated to use the latest internet technology of multicasting in transport data to multiple network clients per Steger's teaching in the application of data sharing technology per Steger (column 9, line 20-52) and Todorov (abstract)'s teaching.



- e. Regarding claim 17, Todorov shows further comprising configuring the client component as an in-process server that communicates with a client application (page 6, paragraph 49).
- f. Regarding claim 18, Todorov shows further comprising dynamically adding and removing items via an OLE for Process Control (OPC) interface (page 5, paragraph 40).
- g. Regarding claim 19, Todorov shows further comprising employing the OPC interface to add groups and items that are relevant for a current display screen application (page 3, paragraph 28; page 5, paragraph 44; page 8, paragraph 58).
- h. Regarding claim 20, Todorov shows the further comprising formatting messages for adding the groups and items (Fig. 7; page 5, paragraph 44; page 8, paragraph 58-60).
- i. Regarding claim 21, Todorov shows the further comprising: parsing through requested information; setting up internal structures; and passing items that are valid for one or more devices (Fig. 7; page 5, paragraph 44; page 8, paragraph 58-60).
- j. Regarding claim 22, Todorov shows the further comprising returning at least one of a block id, an offset, and a size (Fig. 7; page 5, paragraph 44; page 8, paragraph 58-60).
- k. Regarding claim 23, Todorov shows the block id representing a handle to be employed for scheduling a device read and updating the values (Fig. 7; page 5, paragraph 44; page 8, paragraph 58-60; page 11-page 13, paragraph 111-116).
- l. Regarding claim 24, Todorov shows the further comprising: determining when it is time to read a data block; and employing the block id to write the data block to a shared memory buffer that has been reserved for that block (Fig. 7; page 5, paragraph

44; page 8, paragraph 58-60; page 9-10, paragraph 65-81; page 11-page 13, paragraph 111-116).

- m. Regarding claim 25, Todorov shows the further comprising adding a public group that corresponds to at least one of a client data request and a current display screen (page 3, paragraph 28; paragraph 58-60; page 11-page 13, paragraph 111-116).
- n. Regarding claim 26, Todorov shows the further comprising employing item handles that are assigned in a configuration phase (page 9-10, paragraph 65-81).
- o. Regarding claim 29, Todorov shows the further comprising parsing a received message buffer to determine what data values have been requested (Fig. 7; page 5, paragraph 44; page 8, paragraph 58-60).

Together Todorov and Steger disclosed all limitations of claims 16-29. Claims 16-29 are rejected under 35 U.S.C. 103(a).

7. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Todorov et al. (US 20020116453 A1), hereinafter referred as Todorov in view of Steger et al. (US 6411987 B1), hereinafter referred as Steger.

- a. Todorov shows an industrial control system (Fig. 1), comprising: means for exchanging data between a client application and an industrial controller (page 3, paragraph 29); means for determining a local configuration and a distributed configuration to exchange data (page 4, paragraph 33; page 5, paragraph 44: access the data exchange protocol plugins to render data for a referenced item to a client application according to a particular data exchange protocol); means for directing data according to a shared memory protocol in the local configuration (page 3,

paragraph 29-31; page 5, paragraph 40). Todorov also shows multiple client may access the same data item (page 5, paragraph 44). Todorov does not show means for directing data according to a multicast protocol in the distributed configuration.

- b. Steger shows means for directing data according to a multicast protocol in the distributed configuration (column 4, line 28-40) in an analogous art for the purpose of industrial automation system and method having efficient network communication.
- c. It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to modify Todorov's functions of control access server with Steger's functions of multicasting data item.
- d. The modification would have been obvious because one of ordinary skill in the art would have been motivated to use the latest internet technology of multicasting in transport data to multiple network clients per Steger's teaching in the application of data sharing technology per Steger (column 9, line 20-52) and Todorov (abstract)'s teaching.

Together Todorov and Steger disclosed all limitations of claim 30. Claim 30 is rejected under 35 U.S.C. 103(a).

8. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Todorov et al. (US 20020116453 A1), hereinafter referred as Todorov in view of Steger et al. (US 6411987 B1), hereinafter referred as Steger.

- a. Todorov shows an industrial control system (Fig. 1), comprising: a server application operative to exchange data with an industrial controller (page 3, paragraph 29); a server component associated with the server application, the server component

determines a local configuration environment and a remote configuration environment (page 4, paragraph 33: page 5, paragraph 44: access the data exchange protocol plugins to render data for a referenced item to a client application according to a particular data exchange protocol). Todorov also shows multiple client may access the same data item (page 5, paragraph 44). Todorov does not show a host component that exposes objects in the server component, the objects communicate with a client component over a shared memory protocol according to the local configuration environment and over a multicast protocol according to a remote configuration environment.

- b. Steger shows a host component that exposes objects in the server component, the objects communicate with a client component over a shared memory protocol according to the local configuration environment (column 9, lines 20-57: Logos sockets also use shared memory or TCP/IP as appropriate) and over a multicast protocol according to a remote configuration environment (column 4, lines 28-40) in an analogous art for the purpose of industrial automation system and method having efficient network communication.
- c. It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to modify Todorov's functions of control access server with Steger's functions of multicasting data item.
- d. The modification would have been obvious because one of ordinary skill in the art would have been motivated to use the latest internet technology of multicasting in transport data to multiple network clients per Steger's teaching in the application of

data sharing technology per Steger (column 9, line 20-52) and Todorov (abstract)'s teaching.

Together Todorov and Steger disclosed all limitations of claim 31. Claim 31 is rejected under 35 U.S.C. 103(a).

9. Claims 32-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Todorov et al. (US 20020116453 A1), hereinafter referred as Todorov in view of Steger et al. (US 6411987 B1), hereinafter referred as Steger.

- a. Regarding claim 32, Todorov shows an industrial control system (Fig. 1), comprising: a client application operative to exchange data with an industrial controller (page 3, paragraph 29); a client component associated with the client application, the client component determines a local operating environment and a remote operating environment (page 4, paragraph 33; page 5, paragraph 44: access the data exchange protocol plugins to render data for a referenced item to a client application according to a particular data exchange protocol); and a connection component operative with the client component to select a shared memory protocol according to a local operating environment (page 3, paragraph 29-31; page 5, paragraph 40). Todorov also shows multiple client may access the same data item (page 5, paragraph 44). Todorov does not show the connection component selecting a multicast protocol according to a remote operating environment.
- b. Steger shows the connection component selecting a multicast protocol according to a remote operating environment (column 4, line 28-40) in an analogous art for the

purpose of industrial automation system and method having efficient network communication.

- c. It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to modify Todorov's functions of control access server with Steger's functions of multicasting data item.
- d. The modification would have been obvious because one of ordinary skill in the art would have been motivated to use the latest internet technology of multicasting in transport data to multiple network clients per Steger's teaching in the application of data sharing technology per Steger (column 9, line 20-52) and Todorov (abstract)'s teaching..
- e. Regarding claim 33, Todorov shows the client application is a Human Machine Interface (HMI), the HMI, the HMI having a graphical display output and one or more inputs to interact with the industrial controller (page 3, paragraph 28).

Together Todorov and Steger disclosed all limitations of claims 32-33. Claims 32-33 are rejected under 35 U.S.C. 103(a).

**DETAILED ACTION**

***Continued Examination under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 03/15/2006 has been entered. Claims 2, 4-5, 11-12, 14-15, 30 and 40 are amended. Claims 1, 31 and 41-44 are cancelled. Claims 2-30 and 32-40 are still pending.
2. Amendment received on 06/29/2005 was entered. Claims 1, 5, 14-15, 30, 40-41 and 43-44 were amended. Claims 1-44 are still pending.

***Priority***

3. This application has no priority claim made. The filing date is 12/12/2001.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 30 and 32-40 are rejected under 35 U.S.C. 102(a) as being anticipated by Keller et al.

(Dynamic Dependencies in Application Service Management), hereinafter referred as Keller.

- a. Regarding claim 30, Keller disclosed a method for determining dependencies between at least two components in an information technology (IT) system,

- comprising: discovering the at least two components in the IT system by receiving real-time messages (page 6, right column, 1<sup>st</sup> paragraph: MLMs: resource discovery functions); monitoring the usage of resources by the two components in the IT system and, if a resource is used by one of the two components, generating a message indicating the use of that resource by that component (page 6, right column, 1<sup>st</sup> paragraph: MLMs); accumulating each message indicating the use of one of the resources by one of the two components (page 5, right column, last paragraph-page 6, left column, 1<sup>st</sup> paragraph: dependencies identified at application install time and those discovered at runtime, structural part captures dynamic information; page 6, right column, 3rd paragraph-page 7, left column, 1<sup>st</sup> paragraph: application service agent); and if the accumulated messages indicate that the two components use the same resource, then indicating that a dependency between the two components has been detected (page 5, right column, 4<sup>th</sup> column; page 6, right column, 3rd paragraph-page 7, left column, 1<sup>st</sup> paragraph: application service agent), and determining a direction of the dependency between the two components (page 2, left column, 2<sup>nd</sup> paragraph, item 1).
- b. Regarding claim 32, Keller disclosed the method of claim 30, wherein the component is selected from the group consisting of an application, a network connection endpoint, and a server (Fig. 1; page 2, left column, 1st paragraph and 2<sup>nd</sup> paragraph, item 1; page 6, right column, 1<sup>st</sup> paragraph).
- c. Regarding claim 33, Keller disclosed the method of claim 32, wherein at least one message indicates a network outbound connection by one of the two components



(Fig. 1; page 2, left column, 1st paragraph and 2<sup>nd</sup> paragraph, item 1; page 6, right column, 1<sup>st</sup> paragraph).

- d. Regarding claim 34, Keller disclosed the method of claim 32, wherein at least one message indicates a network listener by one of the two components (Fig. 1; page 2, left column, 1st paragraph and 2<sup>nd</sup> paragraph, item 1; page 6, right column, 1<sup>st</sup> paragraph).
- e. Regarding claim 35, Keller disclosed the method of claim 32, wherein at least one message indicates a use of a file by one of the two components (Fig. 1; page 2, left column, 1st paragraph and 2<sup>nd</sup> paragraph, item 1; page 3, right column: Component Type and Component Activity).
- f. Regarding claim 36, Keller disclosed the method of claim 30, further comprising tracking changes to the dependency between the two components (page 6, right column, 1<sup>st</sup> paragraph-page 7, left column, 6<sup>th</sup> paragraph: MLMs, Application Service Agent, Resource Broker and Resource Directory).
- g. Regarding claim 37, Keller disclosed the method of claim 30, wherein the dependency is a containment dependency (Fig. 1; page 2, left column, 1st paragraph and 2<sup>nd</sup> paragraph, item 1; page 3, right column: Component Type and Component Activity: file and file system).
- h. Regarding claim 38, Keller disclosed the method of claim 30, wherein the dependency is a network dependency (Fig. 1; page 2, left column, 1st paragraph and 2<sup>nd</sup> paragraph, item 1; page 6, right column, 1<sup>st</sup> paragraph).

- i. Regarding claim 39, Keller disclosed the method of claim 30, wherein the dependency is a shared usage dependency (Fig. 1, IP Provider and Network Provider; page 2, left column, 1st paragraph and 2<sup>nd</sup> paragraph, item 1).
- j. Regarding claim 40, Keller disclosed an apparatus for determining dependencies between at least two components in an information technology (IT) system, comprising: A memory storing a program (page 6, right column, 2<sup>nd</sup> paragraph: application service agent); A processor in communication with the memory (page 6, right column, 2<sup>nd</sup> paragraph: application service agent); in which the processor is directed by the program to: discover the at least two components in the IT system (page 6, right column, 1<sup>st</sup> paragraph-page 7, left column, 6<sup>th</sup> paragraph: application service agent work through MLM, Resource Broker and Resource Directory); monitor the usage of resources by the two components in the IT system by receiving real-time messages and, if a resource is used by one of the two components, generating a message indicating the use of that resource by that component (page 6, right column, 1<sup>st</sup> paragraph-page 7, left column, 1st paragraph: application service agent work through MLM); accumulate each message indicating the use of one of the resources by one of the two components (page 6, right column, 3rd paragraph-page 7, left column, 1<sup>st</sup> paragraph: application service agent); and if the accumulated messages indicate that the two components use the same resource, then indicate that a dependency between the two components has been detected (page 5, right column, 4<sup>th</sup> column; page 6, right column, 3rd paragraph-page 7, left column, 1<sup>st</sup> paragraph:

application service agent); and determining a direction of the dependency between the two components (page 2, left column, 2<sup>nd</sup> paragraph, item 1).

Keller disclosed all limitations of claims 30 and 32-40. Claims 30 and 32-40 are rejected under 35 U.S.C. 102(a).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-12 and 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kar et al., (An Architecture for Managing Application Services over Global Networks), in view of Kathrow, et al. (US 6393438 B1), hereinafter referred as Kathrow.

- a. Kar shows (claim 5) a method for collecting information on components in an information technology (IT) system, comprising: discovering the existence of at least one of the components in the IT system (page 2, right column, 2nd paragraph- page 3, left column, 1st paragraph: MLM, resource discovery functions); determining at least one dependency between two or more of the components (page 3, right column, 3rd-5th paragraphs: Dependency Analysis for Service Management); and tracking changes to at least one of the components and the dependency between two or more of the components (page 2, right column, 2nd paragraph- page 3, left column, 1st paragraph: MLM; page 5, right column, 2nd paragraph-page 6, left column, 4th

paragraph: Application Service Agents, Resource Broker and Resource Directory).

Kar does not show explicitly (claim 5) discovering the existence of at least one of the components by receiving real-time messages and using at least one fingerprint, by receiving the real-time messages as event information regarding an occurrence in the IT system, the occurrence relating to a first component; comparing the first component along with other components to at least one fingerprint, wherein the fingerprint represents key low-level elements of a model of a known component; and determining that at least one of the components exists when all of the elements of the fingerprint corresponding to the known component are matched;

- b. Kathrow shows (claim 5) discovering the existence of at least one of the components by receiving real-time messages and using at least one fingerprint, by receiving the real-time messages as event information regarding an occurrence in the IT system, the occurrence relating to a first component (Fig. 2, item 252; column 4, line 7-18); comparing the first component along with other components to at least one fingerprint, wherein the fingerprint represents key low-level elements of a model of a known component (Fig. 4, item 432; column 11, line 49-59); and determining that at least one of the components exists when all of the elements of the fingerprint corresponding to the known component are matched (Fig. 4, item 440; column 11, line 59-62) in an analogous art for the purpose of identifying the existence of differences between two files based upon the fingerprints.
- c. It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to modify Kar's Mid-level manger to include Kathrow's

identifying the difference of two files based upon the fingerprint, including device descriptors.

- d. The modification would have been obvious because one of ordinary skill in the art would have been motivated to incorporate the file/device record updates base upon the hash technologies, i.e. fingerprint/digital signature, to improve the security and performance of configuration management per Kathrow's teaching in the management of applications per Kar (page 2, left column, 2nd paragraph- page 3, left column, 1st paragraph: using mid level manager to monitor the health and status of a application service) and Kathrow (column 1, lines 36-52: using window registry to manage computer programs running under window operating system) 's teachings.
- e. Regarding claim 2, Kar shows further comprising generating a visual map of the IT system, the visual map including a depiction of at least one of the components and the at least one dependency between two or more of the components (Fig. 4; page 4, left column, 2nd paragraph: Dependency Graph; page 5, left column, last paragraph, and right column, last paragraph-page 6, left column, 1st paragraph).
- f. Regarding claim 3, Kar shows wherein the visual map includes tracked changes to at least one of the components (page 5, right column, last paragraph-page 6, left column, 1st paragraph).
- g. Regarding claim 4, Kar shows wherein at least one of the components is an application (page 5, right column, 2nd paragraph-page 6, left column, 1st paragraph: Application Service Agents).

- h. Regarding claim 6, Kathrow shows wherein the occurrence is selected from one or more of a file creation, a file deletion, and a file modification (column 4, line 60-65).
- i. Regarding claim 7, Kathrow shows wherein the occurrence is selected from one or more of a registry key creation, a registry key deletion, and a registry key modification (column 4, line 60-65).
- j. Regarding claim 8, Kathrow shows wherein the occurrence is information regarding detection of a particular component in the IT system (column 4, line 60-65).
- k. Regarding claim 9, Kathrow shows further comprising indicating that a particular component has been damaged if the occurrence is a deletion and at least one of the elements of the fingerprint arc no longer matched by the components in the IT system (Fig. 4, item 436; column 4, line 60-65; column 11, line 62-64; column 14, line 8-15).
- l. Regarding claim 10, Kathrow shows further comprising indicating that a particular component has been uninstalled if the occurrence is a deletion and all of the elements of a minimum set of the fingerprint arc no longer matched by the components in the IT system (Fig. 4, item 436; column 4, line 60-65; column 11, line 62-64; column 14, line 8-15).
- m. Regarding claim 11, Kar shows wherein the at least one dependency is selected from the group consisting of shared library usage, network usage, and containment dependencies (page 3, right column, 4th-last paragraphs: DNS, NFS, IP service, PVC, network components, servers and applications).
- n. Regarding claim 12, Kar shows further comprising: generating a component discovered message upon the discovery of one of the components; retrieving a list of

elements to track for the discovered component; and using the list of elements to track changes to the discovered component (page 2, right column, 2nd paragraph, 1st-3rd bullets).

- o. Claims 14-15 are of the same scope as claim 5. These are rejected for the same reasons as for claim 5.

Together Kar and Kathrow disclosed all limitations of claims 2-12 and 14-15. Claims 2-12 and 14-15 are rejected under 35 U.S.C. 103(a).

6. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kar et al., (An Architecture for Managing Application Services over Global Networks), hereinafter referred as Kar, in view of Kathrow, et al. (US 6393438 B1), hereinafter referred as Kathrow.

- a. Kar shows an agent for collecting information on components in an information technology (IT) system, the agent residing on a computer in the IT system, the agent comprising: an observer module to detect event information about elements of the computer (page 2, right column, 2nd paragraph, 2nd bullet: MLM); and an analysis module to process the event information, the analysis module including: (A) component discovery rules to process event information and using an accumulator to discover the existence on the IT system of at least one of the components (page 2, right column, 2nd paragraph, 2nd bullet: MLM; page 5, right column, 2nd paragraph-page 6, left column, 4th paragraph: Application Service Agents, Resource Broker and Resource Directory), and (B) dependency discovery rules to detect relationships between components of the IT system (page 5, left column, last paragraph). Kar does

not shows matching event information with elements of one or more fingerprints of known components.

- b. Kathrow shows matching event information with elements of one or more fingerprints of known components (Fig. 4, items 432 and 440; column 11, line 49-62) in an analogous art for the purpose of identifying the existence of differences between two files based upon the fingerprints.
- c. It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to modify Kar's Mid-level manger to include Kathrow's identifying the difference of two files based upon the fingerprint, including device descriptors.
- d. The modification would have been obvious because one of ordinary skill in the art would have been motivated to incorporate the file/device record updates base upon the hash technologies, i.e. fingerprint/digital signature, to improve the security and performance of configuration management per Kathrow's teaching in the management of applications per Kar (page 2, left column, 2nd paragraph- page 3, left column, 1st paragraph: using mid level manager to monitor the health and status of a application service) and Kathrow (column 1, lines 36-52: using window registry to manage computer programs running under window operating system) 's teachings.

Together Kar and Kathrow disclosed all limitations of claim 13. Claim 13 is rejected under 35 U.S.C. 103(a).



7. Claims 16-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kathrow, et al. (US 6393438 B1), hereinafter referred as Kathrow, in view of Kar et al., (An Architecture for Managing Application Services over Global Networks), hereinafter referred as Kar.

- a. Regarding claims 16, 23 and 24, Kathrow shows a method, a computer-readable medium storing instructions that direct a microprocessor, and an apparatus with memory containing a program and a processor executing the program for discovering components in an information technology (IT) system, comprising: receiving event information regarding an occurrence in the IT system, the occurrence relating to a first component (Fig. 2, item 252; column 4, line 7-18); comparing the first component along with other components to at least one fingerprint, wherein the fingerprint represents key low-level elements of a model of a known component (Fig. 4, item 432 and 440; column 11, line 49-62). Kathrow also shows (column 4, 1st paragraph; column 11, line 5-64) a single file could be divided into multiple files and multiple fingerprints are used. Kathrow does not show if the first component and the other discovered components match substantially all of the key low-level elements of the fingerprint, using A subfingerprint of A known refined component to discover the existence of A second component that corresponds to the known refined component.
- b. Kar shows (page 5, left column, last paragraph, and right column, last paragraph-page 6, left column, 1st paragraph) as a result of static analysis, the resource dependency graph could be constructed in an analogous art for the purpose of determining the resource dependency in the application service management.

- c. It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to modify Kathrow's file comparison based upon the fingerprint method to include a further depending file (refined component) comparison through an application control (Fig. 2, item 252; column 4, line 16-18) via the result of fingerprint comparison (Fig. 2, item 254; Fig. 4, item 440; column 11, line 59-64) to further ensure all the dependent files as suggested (column 4, 1st paragraph; column 11, line 62-64) will be compared based upon fingerprints.
- d. The modification would have been obvious because one of ordinary skill in the art would have been motivated to fingerprint check not only one file out of multiple files that were from the division out of a single file, but multiple files to the integrity of a file (all divided files or associated resources) in the management of applications per Kar (page 2, left column, 2nd paragraph- page 3, left column, 1st paragraph: using mid level manager to monitor the health and status of a application service) and Kathrow (column 1, lines 36-52: using window registry to manage computer programs running under window operating system) 's teachings.
- e. Regarding claim 17, Kathrow shows the method of claim 16, wherein the known refined component is a version of the known component (column 10, line 16-20).
- f. Regarding claim 18, Kathrow shows the method of claim 16, wherein the known refined component is an optional piece of the known component (column 12, line 6-21).

- g. Regarding claim 19, Kathrow shows the method of claim 16, further comprising generating a command message to collect further information if all of the low-level elements of the fingerprint are matched (column 11, line 59-62).
- h. Regarding claim 20, Kathrow shows the method of claim 19, further comprising receiving event information in response to the command message, wherein the event information is used with the subfingerprint of the known refined component to discover the existence of the second component (Fig. 2, item 252 and 254; column 4, line 7-18).
- i. Regarding claim 21, Kathrow shows the method of claim 16, further comprising detecting low-level items in the IT systems and generating event information regarding the low-level items (Kar, page 5, left column, last paragraph, and right column, last paragraph-page 6, left column, 1st paragraph; Kathrow, Fig. 2, item 252; column 4, line 7-18).
- j. Regarding claim 22, Kathrow shows the method of claim 21, wherein the low-level items are selected from one or more of files, registry settings, and database schemas (column 3, line 59-62).

Together Kathrow and Kar disclosed all limitations of claims 16-24. Claims 16-24 are rejected under 35 U.S.C. 103(a).

- 8. Claims 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kathrow, et al. (US 6393438 B1), hereinafter referred as Kathrow, in view of Kar et al., (An Architecture for Managing Application Services over Global Networks), hereinafter referred as Kar.

- a. Regarding claims 25 and 27, Kathrow shows a method for managing components in an information technology (IT) system, comprising: receiving a first event message for a first occurrence in the IT system, the first occurrence relating to a first component (Fig. 2, item 252; column 4, line 7-18); if the first component matches at least one low-level element of a fingerprint of a model of a known component, adding the first component to an accumulator (Fig. 4: dash line; column 5, line 45-53: REPEAT; column 11, line 14-21: REPEAT). Kathrow also shows (column 4, 1st paragraph; column 11, line 62-64) a single file could be divided into multiple files. Kathrow does not show if all of the low-level elements of the fingerprint have been matched by the first component and other components, generating a command to detect further information; receiving, in response to the command, a second event message providing further details about one of the components; and using a subfingerprint of a known refined component and the further details about one of the components to discover a refined component; and further comprising: generating a component detected message upon the discovery of the refined component; retrieving a list of elements to track for the refined component; and using the list of elements to track changes to the refined component. Kar shows (page 5, left column, last paragraph, and right column, last paragraph-page 6, left column, 1st paragraph) as a result of static analysis, the resource dependency graph could be constructed in an analogous art for the purpose of determining the resource dependency in the application service management.

- b. It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to modify Kathrow's file comparison based upon the fingerprint method to include a further depending file (refined components) comparison through an application control (Fig. 2, item 252; column 4, line 16-18) via the result of fingerprint comparison (Fig. 2, item 254; Fig. 4, item 440; column 11, line 59-64) to ensure all the dependent files as suggested (column 4, 1st paragraph; column 11, line 62-64) will be compared based upon fingerprints; and to store a list of dependent files as per Kar's dependency graph suggested to further ensure all dependent files would be finger print checked.
- c. The modification would have been obvious because one of ordinary skill in the art would have been motivated to fingerprint check not only one file out of multiple files that were from the division out of a single file, but all multiple files to ensure the integrity of a file (all divided files or associated resources) in the management of applications per Kar (page 2, left column, 2nd paragraph- page 3, left column, 1st paragraph: using mid level manager to monitor the health and status of a application service) and Kathrow (column 1, lines 36-52: using window registry to manage computer programs running under window operating system) 's teachings.
- d. Regarding claim 26, Kathrow shows the method of claim 25, wherein the first occurrence is one of a file creation, file deletion, file modification, registry key creation, registry key modification, and registry key deletion (column 4, line 60-65).

Together Kathrow and Kar disclosed all limitations of claims 25-27. Claims 25-27 are rejected under 35 U.S.C. 103(a).

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9. Claims 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kathrow, et al. (US 6393438 B1), hereinafter referred as Kathrow, in view of Kar et al., (An Architecture for Managing Application Services over Global Networks), hereinafter referred as Kar.

- a. Regarding claim 28, Kathrow shows a method for discovery of a refined component in an information technology (IT) system, comprising: using a fingerprint of a model of a known component to discover an existing component in the IT system by matching passive elements in the fingerprint with event information of the IT system (Fig. 4, item 432 and 404; column 11, line 49-62). Kathrow also shows (column 4, 1st paragraph; column 11, line 62-64) a single file could be divided into multiple files and signal (event message) input/output generation via application (Fig. 2, item 252 and 254; column 4, line 7-18). Kathrow does not show generating and transmitting a command message defined by active elements of the fingerprint to discover the refined component; receiving event information relating to the active elements of the fingerprint of the known component; and using a subfingerprint of the refined component to discover the refined component, the refined component relating to the known component, wherein the subfingerprint of the refined component becomes active upon the discovery of the existing component using the fingerprint. Kar shows (page 5, left column, last paragraph, and right column, last paragraph-page 6, left column, 1st paragraph) as a result of static analysis, the resource dependency graph could be constructed in an analogous art for the purpose of determining the resource dependency in the application service management.

- b. It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to modify Kathrow's file comparison based upon the fingerprint method to include a further depending file (refined components) comparison through an application control (Fig. 2, item 252 and 254; column 4, line 7-18) via the result of fingerprint comparison (Fig. 2, item 254; Fig. 4, item 440; column 11, line 59-64) to ensure all the dependent files as suggested (column 4, 1st paragraph; column 11, line 62-64) will be compared based upon fingerprints.
- c. The modification would have been obvious because one of ordinary skill in the art would have been motivated to fingerprint check not only one file out of multiple files that were from the division out of a single file, but all multiple files to ensure the integrity of a file (all divided files or associated resources) in the management of applications per Kar (page 2, left column, 2nd paragraph- page 3, left column, 1st paragraph: using mid level manager to monitor the health and status of a application service) and Kathrow (column 1, lines 36-52: using window registry to manage computer programs running under window operating system) 's teachings.
- d. Regarding claim 29, Kathrow shows the method of claim 28, wherein receiving event information relating to active elements includes receiving an event message (Fig. 2, item 252 and 254; column 4, line 7-18: signal).

Together Kathrow and Kar disclosed all limitations of claims 28-29. Claims 28-29 are rejected under 35 U.S.C. 103(a).

*Response to Arguments*

10. Applicant's arguments filed on 03/15/2006 have been fully considered, but they are not persuasive.

- a. In response to applicant's argument Kathrow does not use the fingerprints to discover component existence through the receipt of real-time messages (2<sup>nd</sup> paragraph on page 11) and Kar does not teach discovering the existence of at least one of the components by receiving real-time messages and using at least one fingerprint ...” (3<sup>rd</sup> paragraph on page 11), it is Kar in combinatory with Kathrow teach the using of fingerprints to discover component existence through the receipt of real-time message as laid out in the above rejection of claim 5 and thus its depending claims. As Kathrow is in the art of managing the computer programs running under window operating system, Kar is in the art of managing the application services by using mid level managers. A fingerprint as defined by the applicant matches the definition of Kathrow. As Kar teaches discovering, identifying and updating (status of) a component and Kathrow teaches using fingerprint to manage (identify and update) computer programs (or files), it is obvious to a person of ordinary skill in the art at the time of invention to utilize window operating system fingerprint functions per Kathrow's teaching in managing the application services per Kar's teaching. Claims 2-4 and 6-15 either depends upon claim 5 or is amended with the similar features. Applicant suggests the same argument would apply to these claims. The above response should apply.



- b. In response to applicant's arguments on claims 16-24, 25-27 and 28-29 with respect to the use of subfingerprint, Kar and Kathrow were shown to use fingerprint in discover, identify and update the programs or application services as in the above rejection section and item a above. The using of subfingerprint is shown by Kar and Kathrow in combinatory. Both of them show the division of either a file (e.g. computer program) into files (column 4, 1st paragraph; column 11, line 62-64) per Kathrow or an application service in dependent resources (page 5, left column, last paragraph, and right column, last paragraph-page 6, left column, 1st paragraph). It is obvious to a person of ordinary skill in the art at the time of invention to extend the usage of a fingerprint per file to multiple fingerprints per files derived from a file per Kathrow's teachings as applied in the management of applications per Kar and Kathrow's teachings.
- c. Regarding applicant's argument on claim 30-40 rejections under 35 USC § 102, applicant alleges that Keller does not teach monitoring the real-time usage of resources by components by "receiving real-time messages" and "indicating that a dependency between the two components has been detected" per 3rd paragraph on page 15. Keller shows that (page 6, right column, 1st paragraph) "MLM provide the basis of this architecture and offer services such as event reception and forwarding, resource discovery functions or topology services"; (page 6, right column, 2nd paragraph) "This view can best be represented by a multilevel resource tree, where the elements in one level are dependent on the availability and status of elements at the next lower level. One way to use the service view is to represent it graphically on

one of the service management stations where a service manager can observe the status of the service and do typical drill down operations for troubleshooting”, and (page 5, right column, last paragraph-page 6, left column, 1st paragraph: dependencies identified at application install time and those discovered at runtime, structural part captures dynamic information. It is clear that Keller does collect dynamic dependency information during run time and the dependency is shown graphically in drill down operations for troubleshooting.

***Remarks***

11. The following pertaining arts are discovered and not used in this office action. Office reserves the right to use these arts in later actions.

- a. O'Neill (US 6832373 B2) System and method for updating and distributing information

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*Conclusion*

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Refer to the enclosed PTO-892 for details.

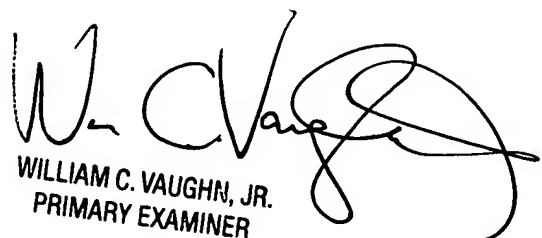
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peling A. Shaw whose telephone number is (571) 272-7968. The examiner can normally be reached on M-F 8:00 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William C. Vaughn can be reached on (571) 272-3922. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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WILLIAM C. VAUGHN, JR.  
PRIMARY EXAMINER